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Acoustics — Statistical distribution of hearing thresholds of otologically normal persons in the age range from 18 years to 25 years under free-field listening conditions

Acoustique — Répartition statistique des niveaux liminaires d'audition de personnes otologiquement normales âgées de 18 à 25 ans dans des conditions d'écoute en champ libre



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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

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The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 28961 was prepared by Technical Committee ISO/TC 43, *Acoustics*.

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Introduction

The threshold of hearing in a free sound field is specified in ISO 226 and ISO 389-7. Threshold data in these documents were obtained from otologically normal persons in the age range 18 years to 25 years inclusive.

As described in ISO 389-7, the threshold of hearing varies among people; the documents merely present median values of hearing thresholds. However, other values on the threshold distribution of individuals are necessary to evaluate the hearing ability of a person in relation to that of the population. Those values have been used also in noise evaluation for estimating the ratio of young people with normal hearing in the population who might be able to detect a sound of concern, e.g. an unwanted sound emitted from a machine.

This International Standard provides a method for calculating percentiles of the hearing threshold distribution for one-third-octave-band and other audiometric frequencies from 20 Hz to 16 000 Hz. The mean value of distribution is set to be the threshold of hearing specified in ISO 226 and ISO 389-7. Furthermore, the method has been developed using many of the hearing threshold data on which those documents were based.

NOTE Percentiles of the hearing threshold distribution can also be determined for bands of noise. However, only percentiles for pure tones are specified in this International Standard because insufficient data for bands of noise are available. Nevertheless, it is possible that this International Standard is applicable to one-third-octave bands of noise.